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A prospective analysis of sustainable tourism in Tunisia using scenario method

Raouf JAZIRI

Higher Institute of Technological Studies of Sousse

(Tunisia)

Raouf.Jaziri@uc.rnu.tn

Ali BOUSSAFFA

Carthage Institute of Higher Business Studies

IHEC

(Tunisia)

Ali.boussaffa@gnet.tn

Abstract:

The Tunisian economy has continued to encourage commitments in the process of restructuring and upgrading of its mosaic productivity while taking into consideration the aspect of sustainability. The tourism is a key industry and our country privileged support its adjustment. This round of activity deemed being enrolled in a dynamic logic of sustainable development. Tourism today is a mean of the protection and enhancement of natural sites with tourism potential, promotion of local culture and heritage and reduction of poverty. However, it also recognizes the negative impacts of tourism. Indeed, the degree of this impact is dependent on the manner in which various stakeholders interact within the Tunisian tourism system.

The meeting of stakeholders according to their purposes, their plans and means of action, brings out a number of policy issues on which actors have convergent and divergent objectives.

In fact we are trying to work through this research to elucidate a Foresight situation for what the Tunisian tourism will be in the years ahead.

Keywords: Foresight, Sustainability, Sustainable Tourism, Stakeholders.

Introduction:

Nowadays, sustainable development has become one of the major concerns of the nations, its objectives and terms of implementation provide it an important and strategic place else in macroeconomic planning or ongoing management of companies and communities. Justifying making of it a pilot area of international cooperation relations, generating new forms of solidarity Sustainable development makes coherent socio-economic trajectories of countries by restricting the gaps and avoiding breakdowns.

These objectives can be achieved in various ways, but agreed that all sectors involved in the effort. Tourism, which the transversal nature to all activities so economic, ecological, agricultural, cultural, social ... can no longer ignore the principles governing its own development and must be innovative and imaginative in the next years to meet the needs of tourism and sustainable development requirements.

Tourism activity has known for many years a spectacular growth. For many countries tourism is a boon for local development and this through the generation of foreign exchange earnings, the ripple effect on other sectors of the economy and creating jobs.

Many countries are heavily engaged in this activity with the major provisions as a development tool and a mean for the protection and enhancement of natural sites with tourism potential to promote culture and heritage and local reduction of poverty.

For Africa in general and Tunisia in particular, tourism is a crucial lever to help drive development. In Tunisia, operation and management of the waterfront shores during the past three decades have produced a spectacular development of tourism. Its location, its natural and socio-cultural heritage of Tunisia confer some advantages in tourism, Tunisia has 846 hotel properties in 2008, spread over 11 regions with a capacity of 246,000 beds. However this activity has shown its limits in many ways, including the disparity of economic impact on the social and geographic acculturation and growing dependence on global phenomena (economic crises and concentration of flows by large transnational tour operators).

Becoming a strategic sector despite the positive results, the Tunisian tourism has produced various forms of disturbance of the natural dynamics and the degradation of different coastal environments. Indeed, several environmental problems have been reported in major coastal areas, the externality effect generated by tourism, the Tunisian government has embarked on a process of sustainable tourism development that is particularly important. However this commitment is conditioned by the integration and awareness of different stakeholders in such adequate processes. That is to say, the fact that most managers and agents operating in the tourism sector must come together around a real consensus on the concept of sustainability, and launch a challenge against a present full of criticism and a future more or less desirable and optimistic. The various stakeholders of the Tunisian tourism system forms a space for reflection and exchange relevant to the issues of sustainable development, it is primarily concerned with the management of property and wealth to know the environment, health, integration of population, biodiversity and this can be observed that the decisions and approaches adopted collectively on the basis of generating the best forward planning scenarios that could lead to better Tunisian tourism.

The scope of environmental challenges, social and economic facing humanity in the XXI century is no more to prove. The "Millennium Assessment Report" showed that the services rendered by the biosphere are saturated when it is necessary to realize the need to protect the ecosystem, so we are engaged in research work addresses both the current situation of tourism in Tunisia and its future scenarios to explain and understand the realities that sustain potential changes to achieve sustainable development.

This paper aims to focus on a solution to the dilemma of continuing the development and preserving the environment, this by analyzing the changing attitudes of the stakeholders involved in the Tunisian tourism system with an analysis of sets of actors adding to it a morphological analysis leading to construct scenarios u sustainable tourism in Tunisia in 2050.

The concept of sustainable development has gradually emerged between 1970 and 1987, shortly after the emergence of the concept of “zero growth” set by the Club of Rome in 1970, the Stockholm conference in 1972 on the human environment has prompted the United Nations to develop a model of development that respects the environment and effective management of natural resources.

I- Inventory of tourism in Tunisia:

Tunisia has paid special attention to tourism development which allowed him to be ranked number one destination from 124 in 2007, in priority to tourism development in the report of the World Economic Forum on tourism competitiveness. This attention has materialized through the definition of strategic directions, through the five-year plans of socio-economic development of Tunisia and the quantitative targets and budget resources to achieve them.

In fact, the strategic development of tourism in Tunisia is based on four main routes, as:

- Improving the quality of servuction ;
- The upgrade, improvement of infrastructure and maintenance of the tourism environment;
- The diversification and enrichment of touristic product and the positioning on promising markets;
- The consolidation of the private sector role in tourism and attracting foreign direct investment.

In the context of the Xth Plan, the strategies of development of tourism based on the use of all growth opportunities, developing niches, upgrading human resources and strengthen training professional upgrading of tourism businesses to improve the quality and competitiveness of the Tunisian tourism.

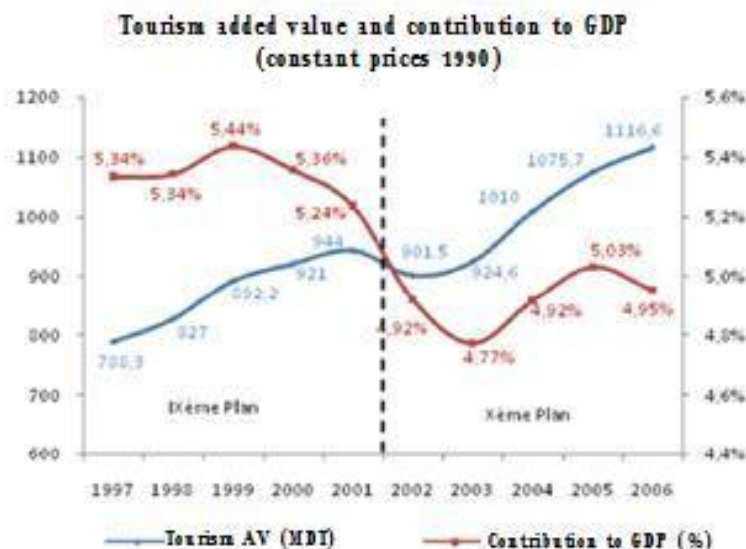
The main thrusts of the strategy for the Xth Plan are;

- A better integration into the national economy through the upgrading of tourism enterprises and this in ensuring and improving this sector's profitability, enhancing recreation and enhancing the role of tourism in the areas of Environment and Planning
- The quality of Tunisian tourism through the establishment of a national plan for quality, incentives and subsidies for certification and the establishment of a system of quality management, safety and environment the introduction of a specification for the renewal and maintenance units
- The development, the infrastructure and the environmental protection by the finalization of infrastructures in existing tourist areas and their improvement.
- The diversification and enrichment of tourist product through innovation and the creation of new types of tourism products, such as Saharan tourism and ecotourism, development of niche carriers namely golf tourism, health tourism ...
- In terms of marketing and advertising, the emphasis is putted on the collaboration between professionals, increased promotional activities relating to new products (thalassotherapy, health tourism, business tourism ...) and the use of new technologies information to obtain greater visibility and a better image of the destination Tunisia.

1- Economic sustainability:

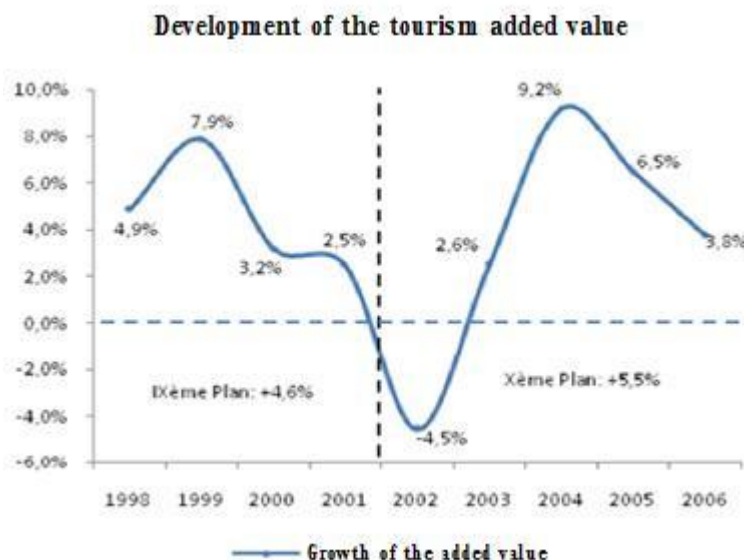
The tourism sector plays a leading role in economic development of Tunisia, given its important contribution to growth of Gross Domestic Product (GDP) (In 2005 it accounted for 7% of GDP and 20% of foreign exchange earnings), the equilibrium of the balance of payments, the polarization of investments of all kinds, In addition to creating jobs and boosting economic activity in general.

Figure 1



This sector is growing continuously and has done a qualitative leap at all levels, thanks to the many strengths of the Tunisian tourism product and that make of Tunisia a tourist destination.

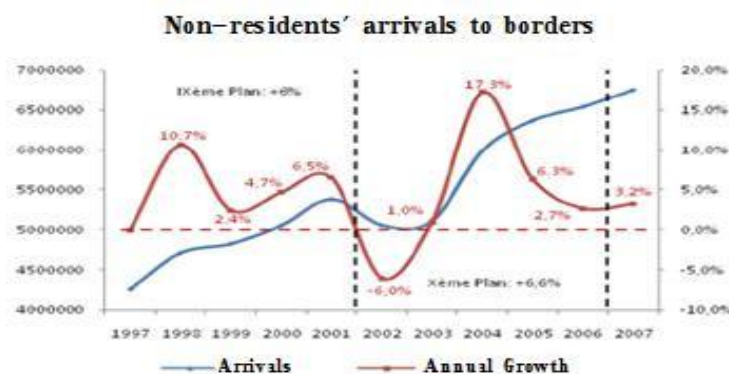
Figure 2



Source: National accounts - INS
Author's calculations

The geographical location of Tunisia, which opens on both sides of the Mediterranean Sea, the richness and diversity of its cultural and natural heritage and deep experience in the field of tourism know-how have made this country a versatile tourist destination. The boom experienced by the tourism sector in Tunisia was reflected through the increasing number of tourists that has reached about 7 million tourists in 2008 (+4.4% compared to 2007). The analysis of tourist arrivals showed a strong growth during the IXth and Xth Plans. Indeed, during the Ninth Plan arrivals border nonresidents have evolved with a rate of 6% from 4,263,107 to 5,387,300 arrivals. During the Xth Plan, the arrivals have evolved with a rate of 6.6% from 5,387,300 to and end of period. The arrivals have continued to evolve at the beginning of the XIth plan with a rate 3.2% to 6,761,906 arrivals.

Figure 3



Source: Tunisian Tourism in Figures 2008 – ONTT

The Tunisian tourism is considered mono-product, mono-market and saw this large dependence of the resort product and the European market with 65% of total tourist arrivals in Tunisia in 2009, with a growing emergence of the North African market, which represents an increasingly large share of arrivals. The structure of tourism demand in Tunisia reflected a risk of unsustainability of the activity on the one hand, given the high dependence of the European market and dominance of the resort product image of the destination. On the other hand, the Tunisian tourism is characterized by seasonality affecting the sustainability of the business and its growth and competitiveness of regions and tourist destination in general.

In fact, the seasonality has an impact on revenue, employment and other sectors of the economy and living standards of local people.

Another limitation of tourism activity in Tunisia is that it depends on the international economic situation, an economic downturn in key European markets may affect the tourism economy of Tunisia.

2- Environmental sustainability:

The integration of environmental dimension in the tourism sector is manifested through the establishment of necessary mechanisms and adoption of management plans, clear and studied to reconcile the demands of sustainable tourism development and to safeguard those key strengths of the tourism product which, first, the environmental, urban and cultural. This integration has been manifested through the following important measures:

- Development of tourist areas in accordance with criteria and indicators that shall preserve the territorial and the balance of the coastline;
- The achievement of several tourist units, such as hotels, residences, entertainment centers and integrated leisure tourism, which are characterized by their architectural style inspired by the authentic national heritage;
- concentrated efforts on the economy of natural resources particularly water, through, inter alia the reuse of treated wastewater to irrigate golf courses and green spaces in tourist areas;
- Adoption of integrated programs to diversify and enrich the tourism product;
- development of tourist circuits in the oases and ancient cities and villages in the mountains, ecological sites, city parks and boulevards of the environment, and providing increased assistance to the parties responsible for environmental protection, such as associations of cities and environment protection;
- The adoption of a national program to promote cultural and environmental tourism, through the participation of all interested parties in the field of protection, enhancement and preservation of cultural and environmental heritage;
- contribution to the financing of projects for improving and upgrading the environment in areas that attract visitors, especially on tours and in old cities, mountain villages, oases and urban parks through the creation of a fund for the protection of tourist areas financed by tourism professionals;
- Support programs for beach development and establishment of specifications and design criteria of development incorporated in the new tourist areas, including those known for their

vulnerability to environmental balance, such as Kerkennah (Fonkhal Sidi) the oases and the island of Djerba¹.

The impacts of tourism on the environment are both positive and negative. The positive impact of tourism lies in the protection of natural areas through their development and their openness to visitors, in logic of sustainable management, which can generate the revenue needed for conservation work and through the promotion of ecotourism. However, the negative impact of tourism lies in the pressure on natural resources including soil, water and energy.

Tunisia has given the environmental dimension of place in its guidelines development through the development strategy of environmental protection and development of programs for preserving natural resources on the basis of a multidimensional approach, integrated and coherent, and with the ultimate goal of ensuring the well being of present and future. Investments are, indeed, past 2600 million dinars during the 8th Plan to 3.175 billion dinars during the IXth Plan period and about 4,000 million dinars for the Xth Plan². During the past decade, such investment accounted for nearly 1.2% of GDP³.

Among the main objectives of environmental policy in Tunisia, are also the fight against pollution, improving quality of life of citizens and preservation of natural resources, efforts and interventions have been directed in this field for a qualitative change in many sectors such as sanitation, solid waste management and the fight against industrial pollution, as well as to further action for the protection of natural resources and streamlining exploitation. Tunisia is known for the vulnerability of its natural ecosystems el its limited resources, particularly water resources. This situation is explained by the specific bioclimatic country. Drought and floods are the primary causes of degradation of natural resources and ecosystems. The persistence of these two phenomena causes an imbalance in protection systems. The unsustainable exploitation of certain resources and the negative effects of pollution and human activities are aggravating factors.

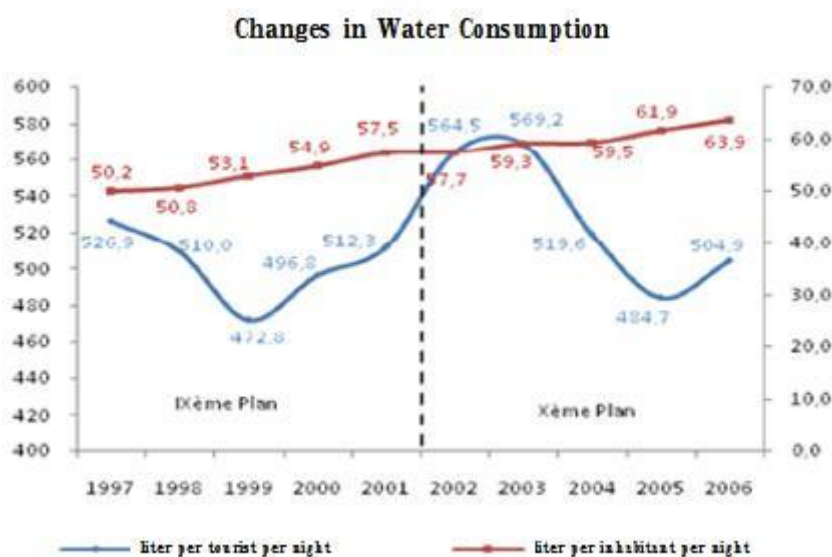
The resources most affected by tourism are water, energy and land. To meet the needs of tourists, the use of water and energy is crucial, especially in the seaside tourism and especially during the high season. The overexploitation of land and the coastline in the seaside tourism and to meet the new needs of tourists has become a highlight of the Tunisian tourism.

¹ Ministries of Agriculture, the Environment and Water Resources, National Report, State of the Environment, 2003. p.53.

² Op.cit. p.62.

³ Op.cit. p.65.

Figure 4



Source: Tourism in Tunisia in Figures - ONTT
 GPHS 2004 - NSI
 Statistics Directories of Tunisia - INS
 Author's calculations

The evolution of water consumption per tourist per night is quite important in the tourist sector when compared to that of the household. This consumption has grown since 1999 to record a peak of 569 liters per tourist per night in 2003. At the time of the two plans, the water consumption has reached levels far beyond the strategic goal set by Tunisia, which is about 300 liters by night.

To cope with this pressure on these scarce resources, Tunisia has implemented a progressive charging system, but where their accommodation is called the maximum fare to country and led the companions of outreach and professional nationally. This has reduced the water consumption for years 2004 and 2005, without achieving the policy objective. In 2006, consumption of water rose over 2005, representing a consumption of 505 liters. It is at this level, interesting to analyze the effectiveness of policies implemented to reduce water consumption in tourism.

In the context of water conservation, tourism resorts to reuse treated wastewater to irrigate golf courses and green areas. Besides the use of treated wastewater in irrigation, some hotel chains to carry Tunisian desalination of seawater and brackish water by reverse osmosis method.

3- The Socio-cultural sustainability:

The socio-cultural sustainability presents a major factor in the sustainable development process in Tunisia, the development and promotion of local culture through the development of cultural tourism enhances the attractiveness of the destination in the point of view of demand, The quality of the tourist experience and tourism revenues while stimulating the creation of new jobs. Social sustainability through the reduction of social pressure and the creation of permanent jobs in the sector while providing income for local people to help improve residents' affinity for the tourism and hospitality to tourists while ensuring their involvement in tourism development.

The analysis of the socio-cultural sustainability can be addressed through several elements. We limit ourselves in our case on the analysis of tourism jobs, social pressure, access to recreation for residents and the development of cultural tourism.

4- Strategy of development of the tourism sector:

Sustainability and competitiveness of tourism is vital to the sustainable development approach pursued by Tunisia. Nowadays tourism is no longer the impasse and in need of making constructive use of strategic choices and optimal instruments for the conduct of the parties involved in the Tunisian tourism system. In light of this conduct of actors, what will be the future of sustainable tourism in Tunisia? What scenarios best contribute to a desirable future for 2050? And what may be necessary recommendations for the reconfiguration of strategies and policies adopted in the process of establishing a sustainable tourism in Tunisia?

In order to better conduct our research, we will proceed by analyzing the behavior and importance of actors interacting in the system under study and by analyzing the games of actors (The Strategic Analysis MACTOR).

Once the strategic analysis is developed we will proceed to step scan the field of possibilities and that in formulating the assumptions made about the evolution of variables in a structured space of possibilities, this will allow us then to combine these assumptions in order to obtain micro-scenarios and global scenarios of the future image of sustainable tourism in Tunisia in 2050.

Indeed, morphological analysis will provide us with sets of assumptions as much as images of possible future alternatives. These images proved to be a raw material for decision support and system reconfiguration Tunisian tourism and its components.

II- *The strategic analysis (Actor's Games)*

The future of a system depends often on the realization of a particular event. This in turn may depend on the evolution of certain variables. A system is composed not only of variables but also actors; the analysis of the actors' game is so useful and works on several levels in a prospective study.

A system is a complex set which involves several actors: government (and its various institutions), civil society, national companies, multinational corporations, unions, political parties, professional organizations, international organizations....

These actors cover a wide range of activities and interventions. The success or failure of future projects will result to a large extent of the relationship will develop between these actors, the comparison of their projects, their power relations and their actions. Hence the value of a reflection on the acting and the study of their similarities and differences towards a number of issues and objectives.

The actors in a system are homogeneous or heterogeneous groups that play an important role in the system through the variables describing their projects and that they more or less control. In our study we refer to the method of directive and semi-directive active maintenance in order to finalize a list of key actors interacting in the Tunisian tourism system and can influence the process of creating a tourist Sustainable Tunisia.

Fabrice Hatem defines an actor as follows: “A person, group or organization, aiming certain objectives and facing certain constraints, and which may, in its strategies and ways of action, affect the future of the studied system⁴.”

Michel Godet defines an actor as follows: “An actor is a homogeneous group, with objectives and means of joint actions and implementing the same strategy and displaying a show of force against other actors” (Godet).

Another definition: “We call actors, meaning relevant actor, any person or group of persons or company (or other organization), whose decisions and actions may have in the future (positive or negative, as appropriate) on the future of our company. This influence can be direct or indirect. It can manifest itself through an event created by the actor concerned⁵.” (Publications guides: veille)

For our part, sensitive to the economic and legal approach with the idea of actors in a specific system we define an actor as a system component that interacts with one or more components, which may have unequal power relations and variable in space and in time, while implementing strategies, policies, tactics and having a set of means and resources deployed in order to achieve goals and satisfy needs.

“Thoughts always come looking for work to identify and analyze variables and key actors; case of the latter with an assessment of their margins of maneuver, their strategies and alliances and conflicts. An analysis of actors' games is an essential task particularly difficult. This difficulty arises because of the multiplicity of actors, their respective powers and their relationship in a manner often more complex than the simple relationship of consensus and conflict⁶.” (Christian Schmidt, 1999).

⁴ « Prospective et théorie des jeux », futuribles, avril 1999.

⁵ Guide, veille», document Internet : <http://www.sup.adc.education.fr/bib/Publ/Guides/veille/1-ciblage.htm>

⁶ « Prospective et théorie des jeux », futuribles, avril 1999.

On a more formalized way, we look forward to a system that is presented as the result of combined actions of multiple agents identified from the beginning, that is to say, a more or less complex interactions between actors (supposedly rational) which, by their expectations and choices, will lead to final states, options or futures. Knowledge of the objectives pursued by each actor and the means available to satisfy them are needed to characterize the game, so information is needed on each of the actors and the environment in which it operates and the mechanisms of interaction. The resolution of the problem posed by the interaction of actors' decisions involving the variables they control, should lead to several possible outcomes, several solutions to the actors' game. It is logically possible futures in the form of scenarios.

Game theory provides a set of analytical tools, but large enough for applications limited by the mathematical constraints and assumptions often restrictive. The MACTOR method (Méthode ACTeurs, Objectifs, Rapports de force) proposes a process to analyze the interplay of actors and some simple tools that allow to take into account the richness and complexity of information to process, providing the analyst intermediate results that shed light on some dimensions of the problem.

The actors' game analysis allows, among other things, establishing a classification that highlights the actors and the most important issues in the exploration of the future. Defining scenarios for the future must be based on good understanding of the objectives of different actors and how they want to or can be mobilized to meet these objectives.

The actors' game intervenes in two ways in a prospective analysis:

First, in a conventional manner before making scenarios, knowing that the actors have different degrees of freedom and can order in several key variables assumptions, the future depends on the actors' game, so it's important to understand this game even before building scenarios. The scenarios should incorporate assumptions for the studied outlook, the evolution of actors' strategies, and the evolution of the actors' game under its various components: new actors, new opportunities and new strategies, new goals.

Then, the actors' game, according to the interests of each and its means of action, can intervene at a second level in a prospective analysis in terms of resistance or mobilization for a given future (for a given scenario). Among the scenarios in a prospective study, it may be that favor certain actors over others. The futurist may favor or advocate configuration data space as possible because of specific criteria: economic, technical, but also because of the strong mobilization of key actors in these configurations. The morphological space defined by the range of possible futures may be thus reduced to a subspace of solutions useful and feasible. This type of analysis can distinguish socially possible future (stable), who mobilized a large number of actors, but especially the most powerful actors, future social states corresponding to unstable because of the resistance which they are opposite from the key actors in the system.

In fact, as already indicated, in our research we used the MACTOR method during the phase of strategic analysis. The method of analysis of actors' games, MACTOR seeks to assess the relative strength between the stakeholders and to explore their similarities and differences towards a number of issues and associated objectives.

Based on this analysis, the objective of the use of the MACTOR method is to provide a number of actors or a decision support for the establishment of their political alliances and conflicts. From a methodological MACTOR perspective includes seven phases:

- Step 1: Build Table "strategies of actors"
- Step 2: Identify the strategic issues and the associated objectives
- Step 3: Position the stakeholders on the objectives and identify similarities and differences (simple positions)
- Step 4: Prioritize for each stakeholder priorities of objectives (valued positions)
- Step 5: Evaluate the balance of power of the stakeholders
- Step 6: Integrate the balance of power in the analysis of convergence and divergence between stakeholders
- Step 7: formulate the key questions of the future and strategic recommendations

Our first part based on strategic analysis (analysis of actors' games in the Tunisian tourism system) is organized around several components presented in this part of the study in four stages.

The first step is to identify the main actors involved in these issues to identify the size of the project⁷, investigating the issues or the battlefield, and to identify the objectives pursued by these actors on these battlefields.

The second step is to analyze and describe the actors' game under two forms:

1. The identification of direct influences of actors on each other (It's the matrix actor/actors or matrix of direct influences MDI).
 2. The description and measurement of the position of each actor in relation to each objective (it's the matrix actors/objectives or the matrix of valued positions 2MAO).
- This second step is the result of work of several meetings.

During the third step and on the basis of these two matrices, the software provides Mactor data processing and determines a set of results to better understand the positions of actors throughout the game (dominant or dominated actors), identify the most relevant objectives for involving stakeholders, objectives controversial or not to reveal the conflicts of interests or otherwise convergence in the positions of various actors..

⁷ The project of sustainable tourism development in Tunisia.

The fourth step is results interpretation; next, naturally, every actor will be able to know what was worked on, to analyze the results based on their own position, on their own vision of the stakes, to finally get the strategic learning.

Starting from the interviews of the first step, we have finalized a list of seventeen actors considered as having a major role on the development of sustainable tourism in Tunisia. The identification and the differentiation of the stakeholders are done based on the fact whether they have divergent or convergent views about the most important fields of stakes of the project. And the list consists of:

- The national office of tourism in Tunisia (**ONTT**);
- The ministry of development and international cooperation (**MDCop**);
- The ministry of environment (**M.Env**);
- The ministry of agriculture and hydraulic resources (**MAgRH**);
- The ministry of culture (**Min.Cult**);
- The national office of cleansing (**ONAS**);
- The tour-operators (**Tour.op**);
- The national agency of the environment protection (**ANPE**);
- The national commission of sustainable development (**CNDD**);
- The national agency of the littoral's protection (**APAL**);
- The promoters (**Promot**);
- The travel agencies (**Agc.voy**);
- The international centre of technology and environment (**CITET**);
- The Hotels managers (**Dir-hot**);
- The national agency of the renewable energies (**ANER**);
- The environmental, social and cultural nongovernmental organisations (**ONG**);
- The persons in charge of sites and historical monuments (**Res.Mnum**).

We have to notice that although the list of the stakeholders -as the objectives list below- was established based on the interviews; these actors have been widely interrogated in our survey via on directive active interviews.

The identification of the objectives was done was led by collecting from the stakeholders their objectives in the different battlefields. Based on this material (many objectives were identified through this way), we have finalized a list of twenty-one objectives that are considered as objectives pursued by the seventeen actors identified in the major fields that command the Tunisian tourism future.

These objectives have been the object of formalizing their precise expressions. In fact, since the method consists in positioning the actors on every objective according to whether they are very favourable, favourable, indifferent, less favourable or very defavourable to

them, the precise formalization of every objective is very important to allow this evaluation of every actor's position. We have finalized the list of the twenty-one objectives in this manner:

- Promote sustainable development of the sea and coastline and stop the degradation of coastal areas ([Dp.St.Dg](#)) ;
- Strengthen social and territorial cohesion ([CoST](#)) ;
- Reduce vulnerability to flooding and drought ([DimRIS](#)) ;
- Reduce water pollution ([Rd.PolH](#)) ;
- Improve the quality of life of the population and ensure their integrity ([QuVP](#)) ;
- Review and monitor more national strategies for sustainable development ([CoSDD](#)) ;
- Contribute to the socio-cultural enrichment ([Enr.SCul](#)) ;
- Enrich and diversify Tunisian tourism products ([Enr.PTT](#)) ;
- Improve competitiveness ([Amé.Comp](#)) ;
- Develop mechanisms for public funding to support the most disadvantaged regions ([Fin.Régi](#)) ;
- Strengthen and expand the margins of maneuver of local authorities (Decentralization) ([Décent](#)) ;
- Promote sustainable urban development ([D.U.D](#)) ;
- Streamline the management of water resources ([RR.Eaux](#)) ;
- Build new forms of renewable energy ([Eng.Rnv](#)) ;
- Deploy the culture of total quality ([Cul QuT](#)) ;
- Build a balanced partnership between public and private sectors ([PEPP](#)) ;
- Improve access to information and promote the participatory approach ([Info.ApP](#)) ;
- Prevent the uncontrolled construction around tourist zones ([Lut.CCA](#)) ;
- Educate the local people for their involvement in the process of sustainable tourism ([Sn.Po.DD](#)) ;
- Encourage the creation of jobs ([Cré-empl](#)) ;
- Put in place new regulations ([Nvl.Rég](#)).

Several exchange meetings with professionals to build the two tables of data entry. The actors' game of the Tunisian tourism system will not only depend on the position taken by each actor as he is in favor or opposed to the different objectives, but also on the power of these actors, their capacity to influence one others and influence the system.

It is therefore necessary to document these two kinds of relationships: the position of actors relative to the objectives and the influence of these actors. Two tables of data input Mactor model were completed:

- A matrix of balance of power “actor/actors” which are represented directly influence the capacity of each actor on each other (Check Figure 5)
- A matrix “actors/objectives” which are represented positions (positive or negative) of each actor in relation to each objective (Check Figure 6).

Figure 5: Matrix of direct influences (MDI) actors x actors

MID	(ONTT)	(MDCop)	(M.Env)	(MAgRH)	(Min.Cult)	(ONAS)	(Tour.Op)	(ANPE)	(CNDD)	(APAL)	(Promot)	(Agc.Voyg)	(CITET)	(Dir-Hôtl)	(ANER)	(ONG)	(Res.Mnum)
(ONTT)	0	2	2	2	2	1	3	2	2	2	2	4	1	4	1	1	3
(MDCop)	3	0	1	2	2	2	2	2	4	1	2	2	2	1	2	2	1
(M.Env)	2	2	0	2	1	4	2	4	3	4	2	2	4	1	3	2	2
(MAgRH)	1	2	2	0	1	2	1	3	2	2	1	0	3	0	2	0	1
(Min.Cult)	2	2	2	1	0	0	2	2	2	1	2	2	2	2	2	1	4
(ONAS)	1	1	1	2	0	0	0	1	1	1	1	0	1	1	1	0	1
(Tour.Op)	2	1	1	1	1	0	0	1	1	2	2	3	2	3	1	2	2
(ANPE)	2	1	1	1	1	2	1	0	2	2	1	1	2	1	2	2	2
(CNDD)	1	1	1	1	1	1	1	0	1	1	0	2	1	3	2	1	2
(APAL)	2	1	1	1	1	1	2	2	1	0	2	1	3	2	1	3	2
(Promot)	1	2	2	2	2	2	3	2	3	2	0	3	2	4	3	2	2
(Agc.Voyg)	1	1	1	1	1	0	2	1	1	2	1	0	1	2	1	2	2
(CITET)	1	1	1	1	0	1	1	2	1	2	0	1	0	1	1	1	2
(Dir-Hôtl)	1	0	1	1	0	1	1	2	1	1	1	3	2	0	1	2	2
(ANER)	1	1	1	1	1	0	1	1	2	0	2	1	1	2	0	2	1
(ONG)	1	1	1	1	1	0	1	1	1	1	0	1	2	0	1	0	2
(Res.Mnum)	0	0	1	1	1	0	1	1	1	1	0	1	1	1	0	2	0

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The matrix of direct influences is completed in accordance with the following conventions. The influences are rated from 0-4 depending on the size of the challenge possible for the actor:

- 0: No influence
- 1: Operative process
- 2: Projects
- 3: Tasks
- 4: Existence

Figure 6: Matrix of valued positions (actors x objectives) MVP

2MAO	(Dp.St.Dg)	(CoSt)	(DirRIS)	(Rd.PoH)	(QuVP)	(CoSDD)	(Enr.SCu)	(Enr.PT)	(Amé.Comp)	(Fin.Régi)	(Décent)	(D.U.D)	(RR.Eaux)	(Eng.Rnv)	(Cui.QuT)	(PEPP)	(Info.ApP)	(Lut.OCA)	(Sn.Po.DD)	(Cré-emp)	(Nvl.Rég)
(ONTT)	3	1	2	2	3	2	1	3	2	2	1	2	1	1	3	3	1	1	3	1	-3
(MDCop)	1	1	1	2	2	-3	2	2	1	3	2	2	2	2	3	2	2	2	2	2	-3
(M.Env)	2	2	3	3	2	-2	1	1	-1	1	1	-1	3	1	3	2	2	2	2	1	-3
(MAgRH)	2	3	3	3	1	1	1	-1	0	1	1	-1	3	1	1	1	1	1	1	0	-3
(Min.Cult)	1	3	1	1	2	1	4	1	0	2	1	1	0	1	2	2	3	2	3	2	-3
(ONAS)	2	2	1	4	2	-1	0	0	0	1	1	1	3	1	1	1	1	2	1	1	-2
(Tour.Op)	2	1	1	1	1	2	0	3	2	1	1	0	0	0	3	3	2	-1	3	0	2
(ANPE)	3	2	2	2	2	-1	1	-1	-1	2	1	0	2	0	3	2	1	2	2	1	-1
(CNDD)	1	2	1	2	3	-1	2	1	1	3	1	2	2	2	2	3	2	1	3	3	0
(APAL)	4	2	1	3	2	1	2	-1	-1	2	-1	-1	1	0	3	2	2	3	3	1	1
(Promot)	2	2	2	2	1	3	1	3	2	2	-1	1	1	2	3	3	2	-2	2	-2	3
(Agc.Voyg)	2	1	1	1	2	1	1	2	2	1	-1	0	0	0	3	3	2	3	2	1	2
(CITET)	2	1	2	2	1	1	1	-1	1	2	1	0	2	2	3	2	2	3	2	1	0
(Dir-Hôtl)	2	1	0	2	1	2	1	2	3	1	2	0	1	1	3	2	3	3	2	1	3
(ANER)	1	0	0	1	1	2	2	1	2	2	1	1	1	4	2	3	2	1	2	1	2
(ONG)	2	1	2	2	2	2	2	-1	0	3	0	0	1	1	2	2	2	1	2	1	2
(Res.Mnum)	2	0	2	1	2	0	3	0	0	1	0	-1	0	0	2	1	1	2	3	0	-1

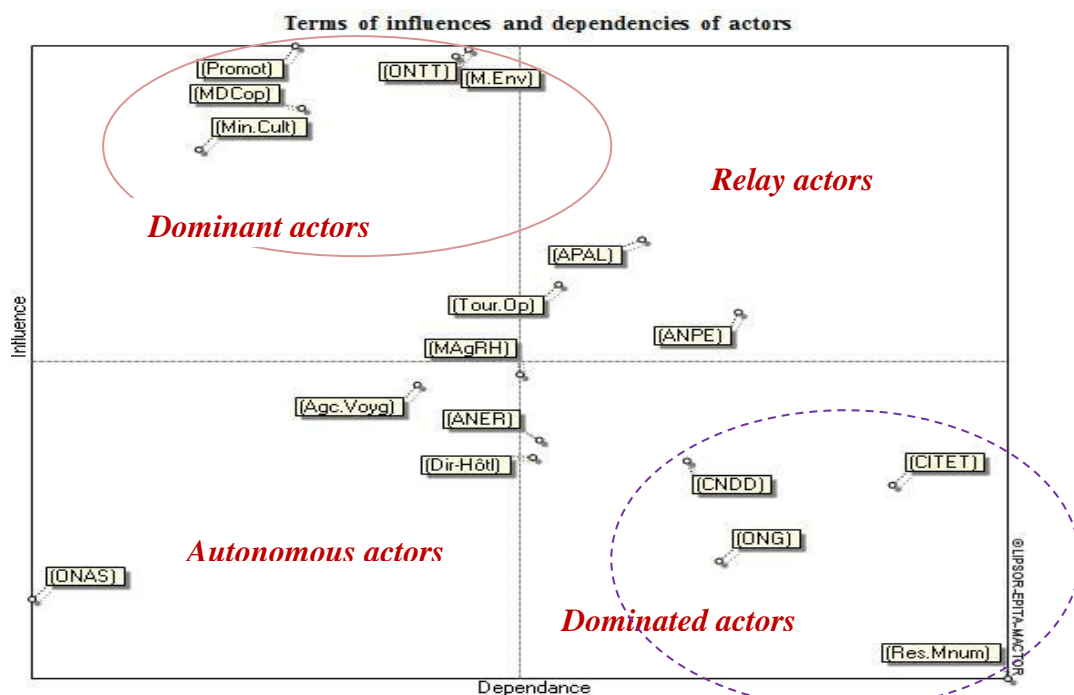
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These two matrices of input data were developed during several sessions of forward thinking which represent about ten hours of discussion.

The discussions between members of the Circle of our thinking about the sustainability of tourism in Tunisia and its prospects in 2050, proved to be extremely successful. They allowed each actor to explain his understanding of the issues. They led each participant, representing its "actors' class", to clarify its position relative to each objective identified by the group.

The results of this first part of our research work (the part relating to the strategic analysis of actor's games) are as follows:

Figure 7



The input matrices of the analysis of actors games in the Tunisian tourism system focused on the future of sustainable tourism in Tunisia and scenarios for 2050 generated unequal power relations between key stakeholders, including we see five dominant namely: Three public sector actors performing a regulatory and institutional strength and leadership decisions are currently on the strategic directions of Tunisian tourism. These actors are the Tunisian National Tourist Office (ONTT), The Ministry of Development and International Cooperation (MDCop), The Ministry of Environment (M. Env) and the Ministry of Culture (Min.Cult). The fifth actor this is the only private actor considered dominant promoters saw his role as leader of investments result in a dynamic economic activity in general and the tourism industry in particular.

Tour Operators (Tour.Op) are actors relay but tend to be dominant actors this reflects the strategies they adopt cartel and their vertical and horizontal integration in the Tunisian tourism value chain. In fact the TO have more selling power of the destination Tunisia and Tunisian tourism marketing remains heavily dependent on them knowing that the budget

allocated for institutional advertising provided by the ONTT remains low, with the ½ that of Morocco and nearly a third of the budget of Turkey and the average advertising expenditure per tourist is less than the world average.

In the area of dominated actors we see that 6 actors are dominated namely:

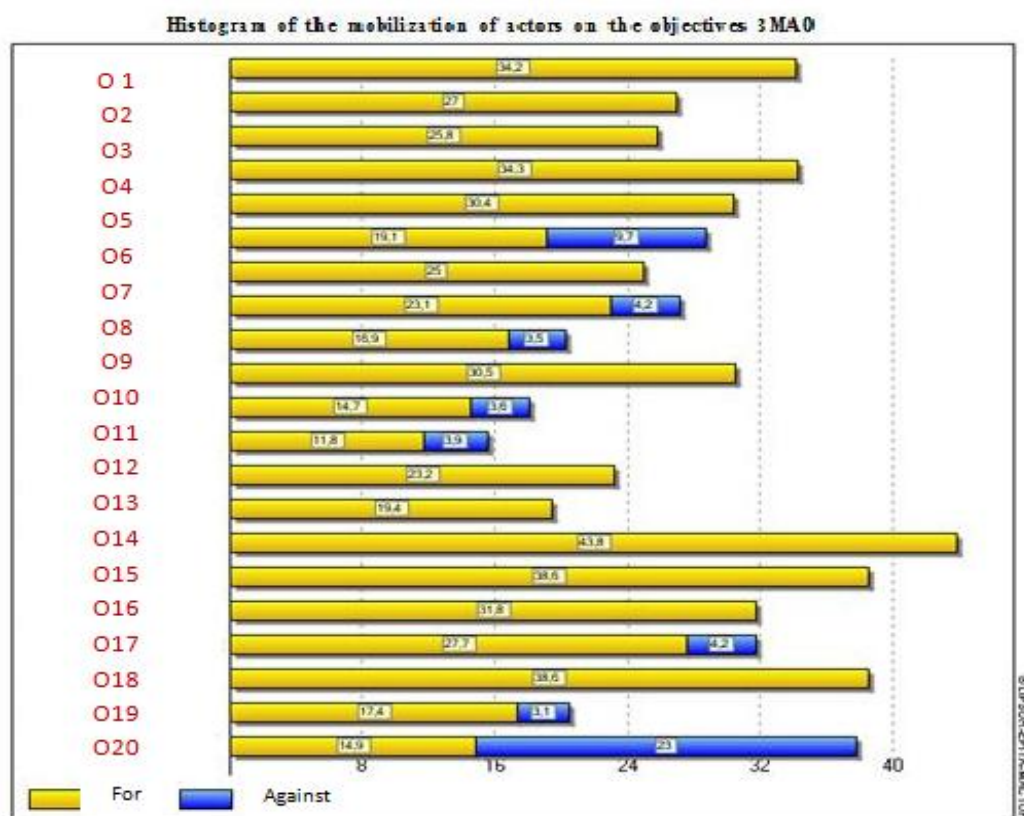
Non-governmental organizations (NGOs) who are still dependent on foreign aid and grants and have not a very attractive media for raising awareness among tourists and local people.

The heads of museums that lack creativity, innovation, flexibility and are limited on the implementation and further revised plan poorly and did not forward looking.

The third actor judged dominated from the results of our research is the National Commission on Sustainable Development (CNDD) and The Center for International Environmental Technology (CITET) both actors are considered the basis of the chain to sustainable development paradoxically, they are strongly influenced and dependent on other actors in the Tunisian tourism and this can be explained by their executive nature of state policies and officers of public institutions especially the Department of Development and International Cooperation (MDCop) and the Ministry of Environment (M. Env).

Managers of hotels, meanwhile, are as dominated actors in the Tunisian tourism system. Hotels managers do not yet benefit from bargaining power and a respectable weight in the said system because there is no delay between them and a tendency not to have any collusion or organization of the cartel. Their strength is decreasing in the future, especially as we see a weakness in their federation, which is limited in terms of decision-making and strategic choice.

Figure 8



The analysis of results of the histogram of mobilization of actors on the objectives shows that eight out of 21 objectives of project development of sustainable tourism in Tunisia in 2050.

The incentive to create jobs (**Cré-empl**) has a goal conflict. In fact many actors consider the creation of employment as an additional burden they must bear. Among these actors we can cite the Promoters (**Promot**) and managers of hotels (**Dir-hôtel**).

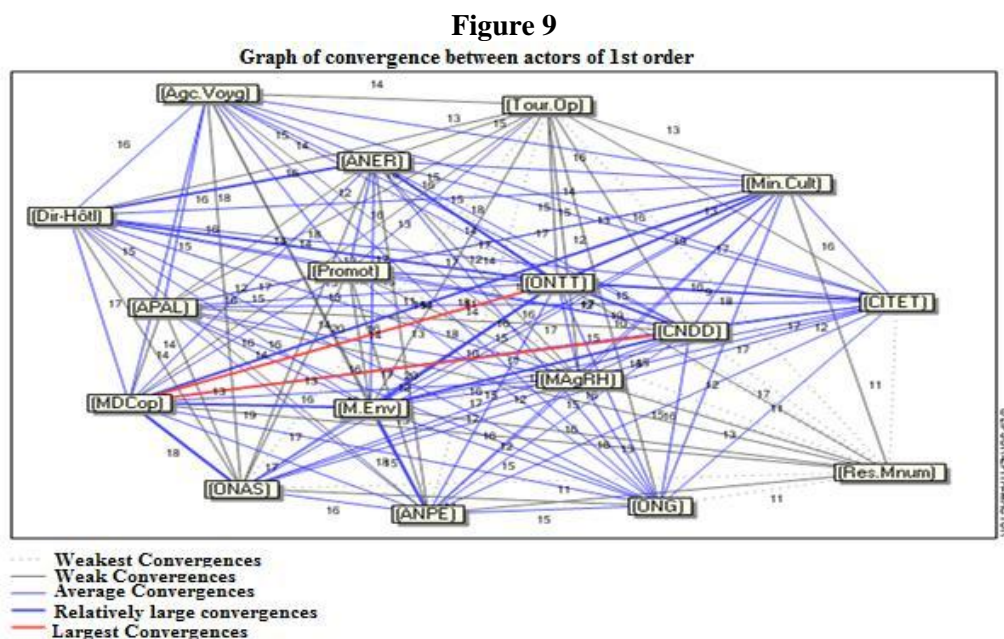
The second confrontational objective is the establishment of new regulations (**Nvl.Rég**) and this target is the more confrontational because a lot of actors especially those public sector are averse to logic modification or change in regulations, saying they are satisfied with the nature and quality provided by the regulatory framework.

Strengthen and expand the margins of maneuver of local authorities (**Decentralization**) (**Decent**), decentralization of decision-making remains a bit limited and can materialize and will not improve in the future as among the actors who are opposed to decentralization.

The objective “Promoting Sustainable Urban Development” (**D.U.D**) is also a confrontational objective. Among the actors there are those who do not agree on the development, construction techniques, and how and how to promote this development.

Review and monitor the benefit of national sustainable development strategies (**CoSDD**); among actors who consider that the system put in place to monitor and review national strategies for sustainable development is satisfactory.

The other confrontational objective is to improve competitiveness (**Amé.Comp**). Paradoxically, this objective has a field of divergence and conflict. The divergence of the actors on this objective is based on the strategic bases of competitiveness and specialization that must follow the actors of the Tunisian tourism system.



The graph of convergence between actors of 1st order represents the links that allows convergence between actors. It helps in particular to identify alliances and conflicts. Links express the convergence rate calculated from the matrix 1CAA.

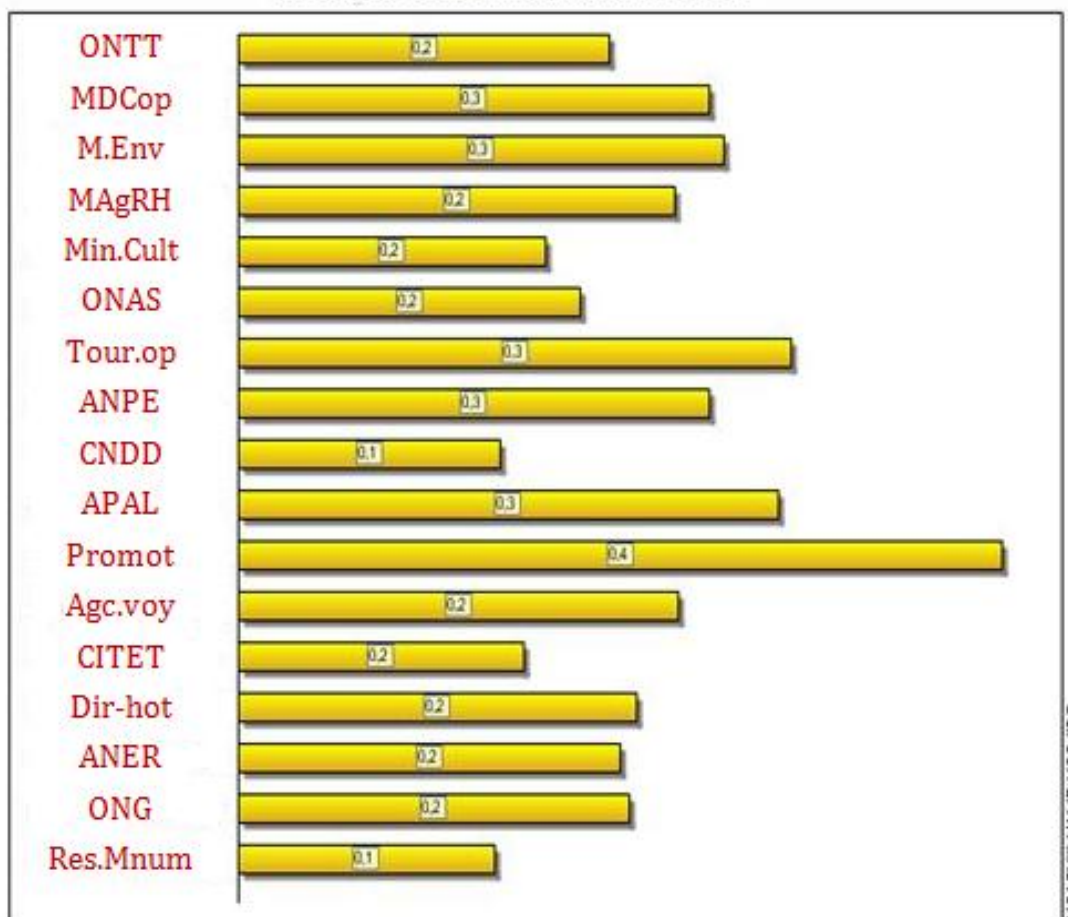
It follows the graph of convergence (Figure 7) a strong convergence between the following actors:

- The Ministry of Development and International Cooperation (MDCop);
- National Centre for Sustainable Development (CNDD);
- The National Office of Tourism in Tunisia (ONTT);

This seems to us quite reasonable given that all these stakeholders trace the outline of the country's development and implement action plans to achieve it.

The relatively high convergences with future potential are the similarities between the Ministry of Development and International Cooperation (MDCop), the Ministry of Environment (M. Env), and the Ministry of the Culture (Min. Cult).

Figure 10
Histogram of the ambivalence of actors



The histogram of the ambivalence of actors shows that the developers are the actors most ambivalent, their instability poses a risk of unsustainability and brakes to hold the targets set by the project to develop sustainable tourism in Tunisia. The Tour operators are also ambivalent actor thing that threatens the stability of the tourism activity in Tunisia since the actor who has a tendency to become a dominant actor and he is pursuing strategies of vertical and horizontal integration in the chain value of tourism in Tunisia and have more bargaining power and marketing the destination as such it is not in the interest of sustainable development strategy referred by Tunisia to keep such an actor as ambivalent and it is necessary to ensure its stability and the stability of its strategic decisions.

III- *The morphological analysis:*

After the results of the analysis of the actors' games and depending on the results of the structural analysis of the Tunisian tourism (JAZIRI & BOUSSAFFA 2009) we will do our morphological study leading to the development of scenarios for sustainable tourism in Tunisia in 2050 following the path of micro-scenarios and this by using the method of scenarios.

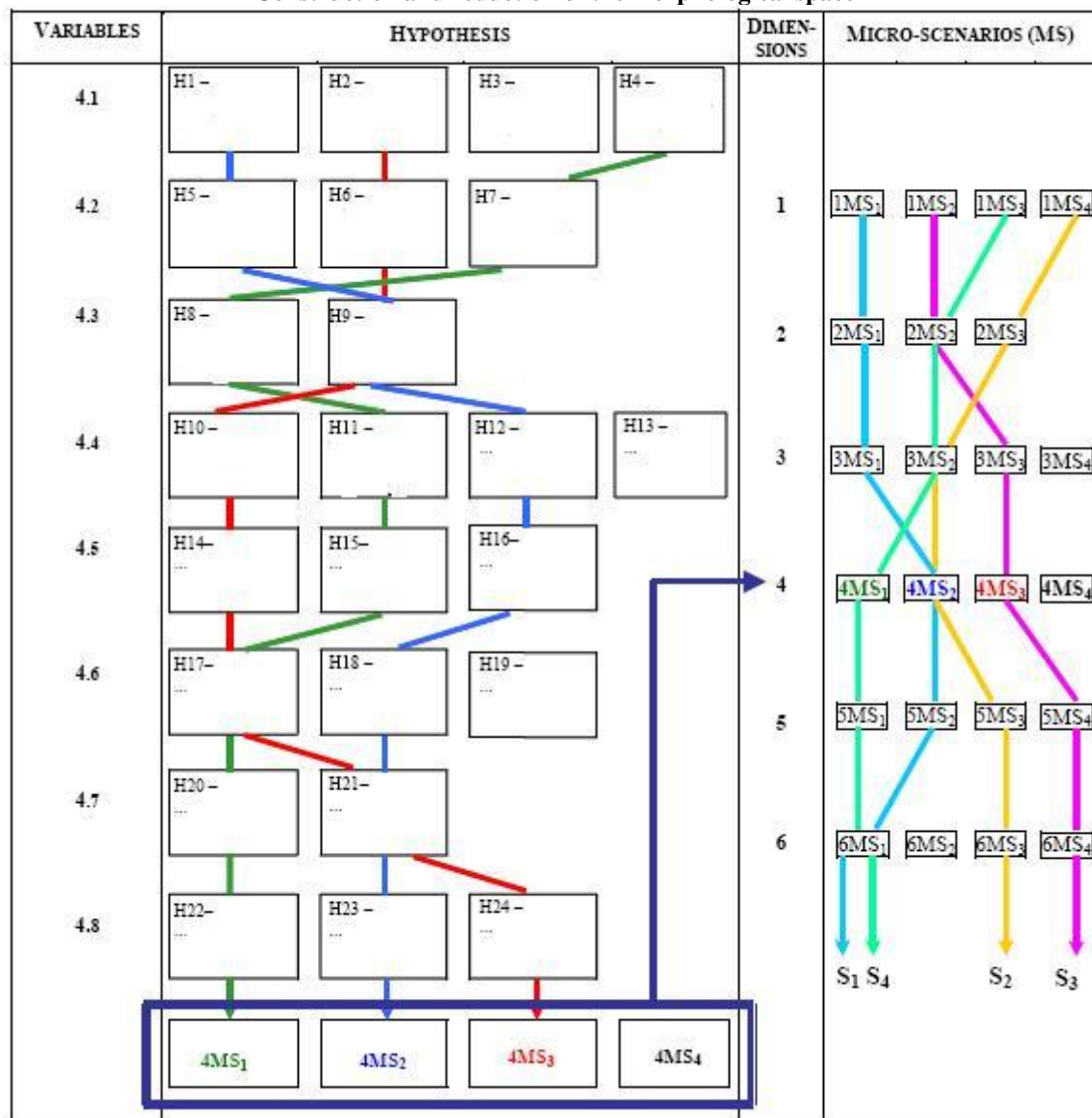
The scenario method can be defined as a synthetic approach that, on the one hand, simulates, step by step and in a plausible and coherent way, a sequence of events leading to a future situation, and which, on the other hand, presents an overall picture of it. It is based on a synchronic and diachronic analysis; the first ones simulate the system state at a given time and are guided by the need for a coherent description, while the second ones bend on the sequence of events and are forced to focus on causality and interrelationships between them. As a method, it includes a set of principles reflexive, critical and retroactive rules.

Indeed, morphological analysis aims to explore' in a systematic and an exhaustive way, the possible technical term of office. The implementation of morphological analysis of Tunisian tourism system is guided by the creative thinking by which two phases are distinguished;

- The construction of the morphological space: It is about creating the morphological space from the functional decomposition of the system and organic solutions chosen at the end of the exploratory phase. Each function can naturally be filled by one or more variables (component).
- The reduction of the morphological space: In this morphological matrix, the number of combinations increases very quickly. The law of combinatorics tells us that the possible combinations increases dramatically as soon as increases slightly the number of elements to combine. To avoid being swamped by the combinations, we must learn to navigate within the morphological space.

“The success in solving requires some selections in the exploration of this labyrinth, and the possibility of reducing its size enough so that we can manage it” (Simon 1991)

Figure 11
Construction and reduction of the morphological space



The list of scenarios displays all the scenarios selected by all the experts of the think tank focused on the future of tourism in Tunisia in 2050 and the degree of success to achieve sustainable tourism in Tunisia. It allows a complete visualization of scenarios and use them to develop strategic recommendations and undertake the necessary actions.

The list of scenarios presented below shows the progression of micro-scenarios.

Variables	Hypothesis			
	H1	H2	H3	H4
Environnemental	Protection and enhancement of natural resources. The establishment of norms and laws encouraging the preservation of natural resources and the use of renewable energy. Reducing water consumption in the tourism sector and an improvement in waste management and an optimal policy for dealing with climate change. On the other hand, the promotion of ecotourism and awareness of local people in improving the quality of life and the preservation of services rendered by the biosphere for future generations.	A convergence of the majority of actors on the interest of minimizing the negative impacts they generate either directly or indirectly on the environment and an awareness of the environmental aspect of sustainability	A low level of interest and awareness among stakeholders about the need to preserve natural resources. Efforts will be limited on some unsustainable technical development unsustainable and weak marketing of ecotourism will be limited on some uncompetitive areas. Increased consumption of water from the tourism sector and coastal degradation. Insufficient and inadequate infrastructure and facilities, Lack of qualified guides contribute to the enrichment of the ecotourism experience, Low proximity between ecotourists and local people for a better sharing of cultures. A disagreement between the actors and ambivalence of the dominant actors and non-stability of their strategic choices that will define the sustainability of the activity.	Vulnerability to flooding and drought, degradation of coastal and non-renewable energy use and a high risk of global warming and the perishability of resources appear primarily to increased water stress point that will be compounded over in an increasingly volatile environment and lack of expectation among actors and a wide divergence on the objectives of the project to develop sustainable tourism in Tunisia
Economic	Increasing the added value of tourism and its contribution to GDP and a limit of seasonality in an improvement in tourism revenues and number of tourist arrivals in Tunisia. The Maintain of an exchange rate favoring the attraction of tourists to the destination Tunisia and improving infrastructure and implementing new information technologies. The economic scale improves the competitiveness of Tunisia as it allows for better attractiveness of FDI.	Economic stability and a trend of slower growth than the current trend. A continuous seasonal and low profitability of the sector and an investment cost per bed very high and increased barriers to entry. A low ripple effect on other sectors. The modest income and marginalized and low investment attractiveness of FDI.	Improving the attractiveness of FDI and improving the performance of the tourism sector and the convergence of actors on the objectives leading to improved profitability, increased added value and growth effect driving on other sectors.	
Socio cultural	A low socio-cultural sustainability and marginalization of the archaeological and cultural resources. Divergence of actors for the sake of improving the preservation of this potential and strategies for its improvement.	An awareness and integration of the local population in the development process. Strong employment creation and reduction of social pressure and folklore. Improved quality of life and development of a strategy for optimum preservation of heritage. Growth in number of admissions to museums results of effective promotion of cultural tourism and ease of access of residents to recreation.		

Presentation of scenarios

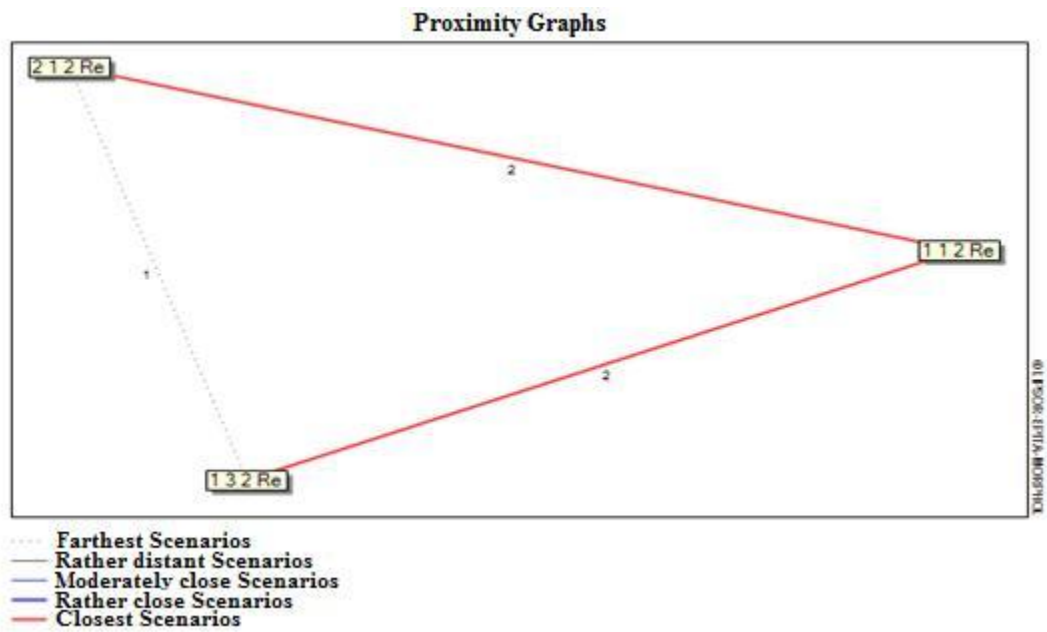
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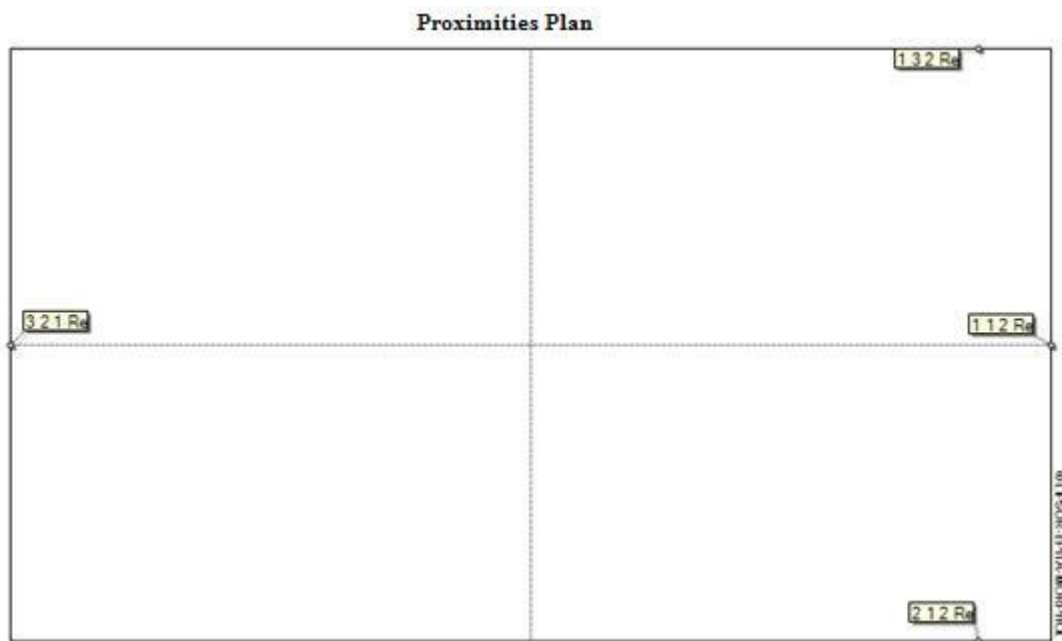
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Comments

[illegible]



Comments



Number of Scenarios:

This table details the total number of possible scenarios, the number of scenarios containing preferably constraints on the number of scenarios not containing exclusion constraints and the number of scenarios used by the user.

Description	Number
Total number of scenarios	24
Number of scenarios after exclusion	4
Number of favorite scenarios	0
Number of pre-selected scenarios	4

Ranking & Selection of Scenarios:

The scenarios selected are the following. They are classified according to their probabilities.

N°	Scénario	P / Equi
1	1 1 2 Re	1,92
2	1 3 2 Re	1,6
3	2 1 2 Re	1,5
4	3 2 1 Re	0,47

Matrix of Proximities:

The matrix of proximities provides information on the number of assumptions common to each scenario.

Matrix of Proximities				
	1: 1 1 2 Re	2: 1 3 2 Re	3: 2 1 2 Re	4: 3 2 1 Re
1: 1 1 2 Re	—	2	2	0
2: 1 3 2 Re	2	—	1	0
3: 2 1 2 Re	2	1	—	0
4: 3 2 1 Re	0	0	0	—

Values express the compatibility between the scenarios.

Conclusion:

Future key issues:

The games of alliances and potential conflicts between stakeholders we determined by the MACTOR method allow us to formulate the key questions of our prospective study on the implementation of key stakeholders in process of establishing a sustainable tourism Tunisia namely:

1. How can we convince developers as a core system on the necessity of adopting a strategy of sustainable development in the tourism sector?
2. How can we sensitize the local population in terms of their involvement in any process of sustainable development?
3. How to support the poorest people in this process?
4. What initiatives and successful strategies should we implement?
5. What new regulations need to be engaged in order to introduce the culture of sustainable development in the tourism sector?
6. How can we build a public-private partnership?

Strategic recommendations:

To achieve tourism at a time sustainable and responsible, we suggest the following strategic recommendations:

1. Developing visions, at a national scale and in the medium and long term, specifying where to place the tourism sector in the national economy and taking better account of global challenges ahead, including climate change and preserving biodiversity.
2. Using the tools of the strategic foresight to better organize the development of the sector by involving the reflection of all stakeholders especially the private sector and civil society.
3. Sharing analysis and approaches to the development of sustainable tourism in the context of regular meetings involving the various responsible bodies.
4. Establishing, at a national scale, mechanisms to provide a reliable, complete and comparable information between the actors.
5. Further strengthening foresight studies on tourism in order to anticipate future developments.
6. Developing an economic analysis to assess the impact of tourism on the environment.
7. Define and clarify the indicators of sustainable tourism.

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